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PAINLESS DEATHS.

BY AN ANALYTICAL CHEMIST.

In our every-day experience, the question is frequently asked us, 'What is the least painful method of killing my pet dog?' (or cat, or other animal); and from what we have heard from others, we are glad to be able to state that nowadays the question is a common one. Glad! not because we rejoice at the general destruction of dumb animals, but because we are gratified to see a very widespread desire among a large proportion of the people to destroy, when compelled by necessity to do so, as humanely and as gently as possible.

A short while ago, had one of the lower animals rendered itself sufficiently obnoxious to deserve death, or, from other causes, was ordained to die, the only thought worthy of the consideration of the destroyer was the choice of the readiest weapon with which the deed might be done. To some extent the same remark would be at the present time true of the bulk of the uneducated classes; but thanks to the spread of education, and the feelings of tenderness and gentleness it engenders, so cruel a fashion is gradually dying out.

Let us suppose, for the sake of making the subject clearer, that we have a pet dog which must be destroyed; and let us take the doomed creature to different classes of persons, and request them to suggest the best means for its destruction. Let us in the first instance take it to that specimen of humanity—or inhumanity, if you please—which, for the sake of distinction, has been called 'a rough,' and ask his advice. He will, in all probability, suggest two methods, which have been very largely used, and still are to some extent—namely, hanging or drowning, and he will perhaps assure you that it will be but a few struggles, and then all will be over. Next, take it to a sportsman, and you will be told to shoot it; take it to an apothecary, and you will be told to use a very active poison—

strychnine, perhaps, or corrosive sublimate, or white arsenic, or prussic acid; take it to a doctor, and perhaps he may tell you the same, or he may tell you to give chloroform first, and drown or otherwise kill the animal while under its influence.

Not one of these methods can we indorse, and we speak from experience, having witnessed the death of many animals under each of these methods, even when applied in the most skilful manner. Drowning is a barbarous and cruel method. The head must be forcibly submerged in water; and who that has seen the struggles and heard the cries of a half-drowned animal, should it for a moment get one breath of air, can say that its death was unattended with great and violent pain. Can any one who has witnessed the convulsive struggles—the sudden drawing up of the lower limbs towards the throat, the stifled cry, the bursting eyeballs of an animal when killed by hanging, say its death was a painless one? As for the strong-poison treatment, in our opinion it is worse than the two just mentioned, for not only is the suffering most acute, but it is enormously prolonged. Many a poor thing have I seen subjected to what was called skilful treatment in this way, and seldom have I experienced more sickening feelings than when watching the agonies of the dying creature. Many a stout and stern heart have I known on such occasions to resolve that they would not look upon such sights again. No; the death by strong poisons is very, very far from being a humane method. Shooting is too slow and uncertain, and ought to be had recourse to only under exceptional circumstances, when no other methods are applicable.

The Society for the Prevention of Cruelty to Animals is very watchful in regard to the humane destruction of animals, and punishes any offender for cruel treatment.

There is one other method, seldom recommended because it is somewhat difficult of application, but which is nevertheless largely employed, and deserves more general recognition. It is the

one suggested by Dr Richardson, and used every week for the destruction of cart-loads of wandering and worthless dogs which find their way to the Home for Lost Dogs at Battersea, and consists in killing chiefly by means of the gas known to chemists as carbonic oxide. Under the influence of this gas, the animal sinks into an insensible sleep, from which it never wakes, and without the least sign of pain. It is the form of death so frequently chosen by French suicides, and unwarily has found many a victim in the weary wayfarer who has laid himself to sleep on the warm bank on the leeward side of a burning limekiln.

Its application does not necessitate so much additional trouble and skill as to make it impracticable or unpopular. The animal has only to be placed in an air-tight chamber connected by a pipe with another chamber in which a charcoal fire is lighted. The products of combustion pass along the pipe to the chamber in which the animal is confined, and before long it dies, to all external appearances, a painless death. The quantity of carbonic oxide gas necessary for the destruction of an animal is very small. Le Blanc found that animals could live in an atmosphere containing twenty-five per cent. of carbonic acid, but died in one containing one and a half per cent. of carbonic oxide, and that recovery was more difficult in the latter case. It is therefore evident that but a very small quantity of this gas is sufficient to cause death.

Dr Richardson, in his lecture before the Society of Arts, has given full details of the method he employs. The process was first tried last May, and since that time, from two hundred to two hundred and fifty dogs per week have been destroyed. It need hardly be added that this humane method deserves to be widely known.

To carry on this work of destruction on so large a scale, Dr Richardson has devised a more elaborate apparatus than that referred to above. His 'lethal' chamber consists of a double-cased box, made of well-seasoned timber, the opening between the casings being closely packed with sawdust. One side has a door through which the cage containing the doomed animals is passed. When the door is closed, carbonic oxide gas, together with the vapour of chloroform and carbon disulphide, proceeds from stoves into the chamber until there is sufficient to cause the death of every one of the confined animals. To ascertain when the whole have ceased to breathe, use is made of a long trumpet-shaped stethoscope made of bamboo; and so delicate is it, that the continued breathing of a single animal, even among a great number, can be detected. As soon as the breathing has completely ceased, no more gas is admitted. No more humane method could possibly be devised.

But Dr Richardson goes a step further, and points out that the method can be applied to animals which are killed to supply us with food; that the flesh of animals so killed is in no way altered, and that the blood can be drawn as completely after as before the animal has been narcotised. It has not yet been applied to oxen and horses, the necessarily larger size of the lethal chamber being in itself a difficulty. Moreover, large animals require a higher percentage

of gas to produce in them narcotic effects. Dr Richardson hopes to make electricity practically useful in killing the larger animals.

The physiological effect of carbonic oxide has long been supposed by chemists to depend on the formation of a compound of carbonic oxide with the hæmoglobin or matter in the red corpuscles of the blood, by which the latter is prevented from exercising its function as an absorbent of oxygen. But whatever its action may be, one thing is certain, that it is a really humane method of slaughtering animals, and on this account we earnestly hope its application will receive that attention it so richly deserves.

A HOUSE DIVIDED AGAINST ITSELF.

CHAPTER XLVII.

THE dinner, it need scarcely be said, was a strange one. Except in Constance, who was perfectly cool, and Claude, who was more concerned about a possible draught from a window than anything else, there was much agitation in the rest of the party. Lady Markham was nervously cordial, anxious to talk and to make everything 'go'—which, indeed, she would have done far more effectually had she been able to retain her usual cheerful and benign composure. But there are some things which are scarcely possible even to the most accomplished woman of the world. How to place the guests, even, had been a trouble to her, almost too great to be faced. To place her husband by her side was more than she could bear, and where else could it be appropriate to place him, unless opposite to her, where the master of the house should sit? The difficulty was solved loosely by placing Constance there, and her father beside her. He sat between his daughters; while Ramsay and Sir Thomas were on either side of his wife. Under such circumstances, it was impossible that the conversation could be other than formal, with outbursts of somewhat conventional vivacity from Sir Thomas, supported by anxious responses from Lady Markham. Frances took refuge in saying nothing at all. And Waring sat like a ghost, with a smile on his face, in which there was a sort of pathetic humour, dashed with something that was half derision. To be sitting there at all was wonderful indeed, and to be listening to the small-talk of a London dinner-table, with all its little discussions, its talk of plays and pictures and people, its scraps of political life behind the scenes, its esoteric revelations on all subjects, was more wonderful still. He had half forgotten it, and to come thus at a single step into the midst of it all, and hear this babble floating on the air which was charged with so many tragic elements, was more wonderful still. To think that they should all be looking at each other across the flowers and the crystal, and knowing what questions were to be solved between them, yet talking and expecting others to talk of the new tenor and the last scandal! It seemed to the stranger out of the wilds, who had been banished from society so long, that it was a thing incredible, when he was thus thrown into it again. There were allusions to many things which he did not understand. There was something, for instance,

about Nelly Winterbourn which called forth a startling response from Lady Markham. 'You must not,' she said, 'say anything about poor Nelly in this house. From my heart, I am sorry and grieved for her; but in the circumstances, what can any one do? The least said, the better, especially here.' The pause after this was minute but marked, and Waring asked Constance: 'Who is Nelly Winterbourn?'

'She is a young widow, papa. It was thought her husband had left her a large fortune; but he has left it to her on the condition that she should not marry again.'

'Is that why she is not to be spoken of in this house?' said Waring, growing red. This explanation had been asked and given in an undertone. He thought it referred to the circumstances in which his own marriage had taken place—Lady Markham being a young widow with a large jointure; and that this was the reason why the other was not to be mentioned; and it gave him a hot sense of offence, restrained by the politeness which is exercised in society, but not always when the offenders are one's wife and children. It turned the tide of softened thoughts back upon his heart, and increased to fierceness the derision with which he listened to all the trifles that floated uppermost. When the ladies left the room, he did not meet the questioning, almost timid look that Lady Markham threw upon him. He saw it, indeed, but he would not respond to it. That allusion had spoiled all the rest.

In the little interval after dinner, Claude Ramsay did his best to make himself agreeable. 'I am very glad to see you back, sir,' he said. 'I told Lady Markham it was the right thing. When a girl has a father, it's always odd that he shouldn't appear.'

'Oh, you told Lady Markham that it was—the right thing?'

'A coincidence, wasn't it? when you were on your way,' said Claude, perceiving the mistake he had made. 'You know, sir,' he added with a little hesitation, 'that it has all been made up for a long time between Constance and me.'

'Yes? What has all been made up? I understand that my daughter came out to me to'—

'Oh!' said Claude, interrupting hurriedly, 'it is that that has all been made up. Constance has been very nice about it,' he continued. 'She has been making a study of the Riviera, and collecting all sorts of *renseignements*; for in most cases, it is necessary for me to winter abroad.'

'That was what she was doing there—her object, I suppose?' said Waring with a grim smile.

'Besides the pleasure of visiting you, sir,' said Claude, with what he felt to be great tact. 'She seems to have done a great deal of exploring, and she tells me she has found just the right site for the villa—and all the *renseignements*,' he added. 'To have been on the spot, and studied the aspect, and how the winds blow, is such a great thing; and to be near your place too,' he said politely, by an after-thought.

'Which I hope is to be your place no more,' Waring said Sir Thomas. 'Your own place is very empty, and craving for you all the time.'

'It is too fine a question to say what is my own place,' he said with that pale indignant smile. 'Things are seldom made any clearer by an absence of a dozen years.'

'A great deal clearer—the mists blow away, and the hot fumes. Come, Waring, say you are glad you have come home.'

'I suppose,' said Claude, 'you find it really too hot for summer on that coast. What would you say was the end of the season? May? Just when London begins to be possible, and most people have come to town.'

'Is not that one of the *renseignements* Constance has given you?' Waring asked with a short laugh; but he made no reply to the other questions. And then there was a little of the inevitable politics before the gentlemen went up-stairs. Lady Markham had been threatened with what in France is called an *attaque des nerfs*, when she reached the shelter of the drawing-room. She was a little hysterical, hardly able to get the better of the sobbing which assailed her. Constance stood apart, and looked on with a little surprise. 'You know, mamma,' she said reflectively, 'an effort is the only thing. With an effort, you can stop it.'

Frances was differently affected by this emotion. She, who had never learned to be familiar, stole behind her mother's chair and made her breast a pillow for Lady Markham's head, a breast in which the heart was beating now high, now low, with excitement and despondency. She did not say anything; but there is sometimes comfort in a touch. It helped Lady Markham to subdue the unwonted spasm. She held close for a moment the arms which were over her shoulders, and she replied to Constance: 'Yes, that is true. I am ashamed of myself. I ought to know better—at my age.'

'It has gone off on the whole very well,' Constance said. And then she retired to a sofa and took up a book.

Lady Markham held Frances' hands in hers for a moment or two longer, then drew her towards her and kissed her, still without a word. They had drawn nearer to each other in that silent encounter than in all that had passed before. Lady Markham's heart was full of many commotions; the past was rising up around her with all its agitating recollections. She looked back, and saw, oh, so clearly in that pale light which can never alter, the scenes that ought never to have been, the words that ought never to have been said, the faults, the mistakes—those things which were fixed there for ever, not to be forgotten. Could they ever be forgotten? Could any postscript be put to the finished story? Or was this strange meeting—unsought, scarcely desired on either side, into which the separated Two, who ought to have been One, seemed to have been driven without any will of their own—was it to be mere useless additional pain, and no more?

The ladies were all very peacefully employed when the gentlemen came up-stairs. Lady Markham turned round as usual from her writing-table to receive them with a smile. Constance laid down her book. Frances, from her usual dim corner, lifted up her eyes to watch them as they came in. They stood in the middle of the room for a minute, and talked to each other

according to the embarrassed usage of Englishmen, and then they distributed themselves. Sir Thomas fell to Frances' share. He turned to her eagerly, and took her hand and pressed it warmly. 'We have done it,' he said in an excited whisper. 'So far, all is victorious; but still there is a great deal more to do.'

'I think it is Constance that has done it,' Frances said.

'She has worked for us—without meaning it—no doubt; but I am not going to give up the credit to Constance; and there is still a great deal to do. You must not lay down your arms, my dear. You and I, we have the ball at our feet, but there is a great deal still to do.'

Frances made no reply. The corner which she had chosen for herself was almost concealed behind a screen which parted the room in two. The other group made a picture far enough withdrawn to gain perspective. Waring stood near his wife, who from time to time gave him a look, half watchful, half wistful, and sometimes made a remark, to which he gave a brief reply. His attitude and hers told a story; but it was a confused and uncertain one, of which the end was all darkness. They were together, but fortuitously, without any will of their own; and between them was a gulf fixed. Which would cross it, or was it possible that it ever could be crossed at all? The room was very silent, for the conversation was not lively between Constance and Claude on the sofa; and Sir Thomas was silent, watching too. All was so quiet, indeed, that every sound was audible without; but there was no expectation of any interruption, nobody looked for anything, there was a perfect indifference to outside sounds. So much so, that for a moment the ladies were scarcely startled by the familiar noise, so constantly heard, of Markham's hansom drawing up at the door. It could not be Markham; he was out of the way, disposed of till next morning. But Lady Markham, with that presentiment which springs up most strongly when every avenue by which harm can come seems stopped, started, then rose to her feet with alarm. 'It can't surely be—Oh, what has brought him here!' she cried, and looked at Claude, to bid him, with her eyes, rush to meet him, stop him, keep him from coming in. But Claude did not understand her eyes.

As for Waring, seeing that something had gone wrong in the programme, but not guessing what it was, he accepted her movement as a dismissal, and quietly joined his daughter and his friend behind the screen. The two men got behind it altogether, showing only where their heads passed its line; but the light was not bright in that corner, and the new-comer was full of his own affairs. For it was Markham, who came in rapidly, stopped by no wise agent, or suggestion of expediency. He came into the room dressed in light morning-clothes, greenish, grayish, yellowish, like the colour of his sandy hair and complexion. He came in with his face puckered up and twitching, as it did when he was excited. His mother, Constance, Claude, sunk in the corner of the sofa, were all he saw; and he took no notice of Claude. He crossed that little opening amid the fashionably crowded

furniture, and went and placed himself in front of the fireplace, which was full at this season of flowers, not of fire. From that point of vantage he greeted them with his usual laugh, but broken and embarrassed. 'Well, mother—well, Con: you thought you were clear of me for to-night.'

'I did not expect you, Markham. Is anything—has anything—?'

'Gone wrong?' he said. 'No—I don't know that anything has gone wrong. That depends on how you look at it. I've been in the country all day.'

'Yes, Markham; so I know.'

'But not where I was going,' he said. His laugh broke out again, quite irrelevant and inappropriate. 'I've seen Nelly,' he said.

'Markham!' his mother cried, with a tone of wonder, disapproval, indignation, such as had never been heard in her voice before, through all that had been said and understood concerning Markham and Nelly Winterbourn. She had sunk into her chair, but now rose again in distress and anxiety. 'Oh,' she cried, 'how could you? how could you? I thought you had some true feeling. O Markham, how unworthy of you now to vex and compromise that poor girl!'

He made no answer for a moment, but moistened his lips, with a sound that seemed like a ghost of the habitual chuckle. 'Yes,' he said, 'I know you made it all up that the chapter was closed now; but I never said so, mother. Nelly's where she was before, when we hadn't the courage to do anything. Only worse: shamed and put in bondage by that miserable beggar's will. And you all took it for granted that there was an end between her and me. I was waiting to marry her when she was free and rich, you all thought; but I wasn't bound, to be sure, nor the sort of man to think of it twice when I knew she would be poor.'

'Markham! no one ever said, nobody thought!'

'Oh, I know very well what people thought—and said too, for that matter,' said Markham. 'I hope a fellow like me knows Society well enough for that. A pair of old stagers like Nelly and me, of course we knew what everybody said. Well, mammy, you're mistaken this time, that's all. There's nothing to be taken for granted in this world, Nelly's game, and so am I. As soon as it's what you call decent, and the crape business done with—for she has always done her duty by him, the fellow, as everybody knows!'

'Markham!' his mother cried almost with a shriek—'why, it is ruin, destruction. I must speak to Nelly—ruin both to her and you.'

He laughed. 'Or else the t'other thing—salvation, you know. Anyhow, Nelly's game for it, and so am I.'

There suddenly glided into the light at this moment a little figure, white, rapid, noiseless, and caught Markham's arm in both hers. 'O Markham! O Markham!' cried Frances, 'I am so glad! I never believed it; I always knew it. I am so glad!' and began to cry, clinging to his arm.

Markham's puckered countenance twitched and puckered more and more. His chuckle sounded over her half like a sob. 'Look here,' he said.

'Here's the little one approves. She's the one to judge, the sort of still small voice—eh, mother? Come; I've got far better than I deserve; I've got little Fan on my side.'

Lady Markham wrung her hands with an impatience which partly arose from her own better instincts. The words which she wanted would not come to her lips. 'The child, what can she know!' she cried, and could say no more.

'Stand by me, little Fan,' said Markham, holding his little sister close to him.—'Mother, it's not a small thing that could part you and me; that is what I feel, nothing else. For the rest, we'll take the Priory, Nelly and I, and be very jolly upon nothing. Mother, you didn't think in your heart that your son was a base little beggar, no better than Winterbourn?'

Lady Markham made no reply. She sank down in her chair and covered her face with her hands. In the climax of so many emotions, she was overwhelmed. She could not stand up against Markham; in her husband's presence, with everything hanging in the balance, she could say nothing. The worldly wisdom she had learned melted away from her. Her heart was stirred to its depths, and the conventional bonds restrained it no more. A kind of sweet bitterness—a sense of desertion, yet hope—of secret approval, yet opposition, disabled her altogether. One or two convulsive sobs shook her frame. She was able to say nothing, nothing, and was silent, covering her face with her hands.

Waring had seen Markham come in with angry displeasure. He had listened with that keen curiosity of antagonism which is almost as warm as the interest of love, to hear what he had to say. Sir Thomas, standing by his side, threw in a word or two to explain, seeing an opportunity in this new development of affairs. But nothing was really altered until Frances rose. Her father watched her with a poignant anxiety, wonder, excitement. When she threw herself upon her brother's arm, and, all alone in her youth, gave him her approval, the effect upon the mind of the father was very strange. He frowned and turned away, then came back and looked again. His daughter, his little white spotless child, thrown upon the shoulder of the young man whom he had believed he hated, his wife's son, who had been always in his way. It was intolerable. He must spring forward, he thought, and pluck her away. But Markham's stifled cry of emotion and happiness somehow arrested Waring. He looked again, and there was something tender, pathetic, in the group. He began to perceive dimly how it was. Markham was making a resolution which for a man of his kind was heroic; and the little sister, the child, his own child, of his training, not of the world, had gone in her innocence and consecrated it with her approval. The approval of little Frances! And Markham had the heart to feel that in that approval there was something beyond and above everything else that could be said to him. Waring, too, like his wife, was in a condition of mind which offered no defence against the first touch of nature which was strong enough to reach him. He was open not to every-day reasoning, but to the sudden prick of a keen

unhabitual feeling. A sudden impulse came upon him in this softened, excited mood. Had he paused to think, he would have turned his back upon this scene and hurried away, to be out of the contagion. But fortunately, he did not pause to think. He went forward quickly, laying his hand upon the back of the chair in which Lady Markham sat, struggling for calm—and confronted his old antagonist, his boy-enemy of former times, who recognised him suddenly, with a gasp of astonishment. 'Markham,' he said, 'if I understand rightly, you are acting like a true and honourable man. Perhaps I have not done you justice, hitherto. Your mother does not seem able to say anything. I believe in my little girl's instinct. If it will do you any good, you have my approval too.'

Markham's slackened arm dropped to his side, though Frances embraced it still. His very jaw dropped in the amazement, almost consternation of this sudden appearance. 'Sir!' he stammered, 'your—your—support—your—friendship would be all I could'—And here his voice failed him, and he said no more.

Then Waring went a step further by an unaccountable impulse, which afterwards he could not understand. He held out one hand, still holding with the other the back of Lady Markham's chair. 'I know what the loss will be to your mother,' he said; 'but perhaps—perhaps, if she pleases: that may be made up too.'

She removed her hands suddenly and looked up at him. There was not a particle of colour in her cheek. The hurrying of her heart parched her open lips. The two men clasped hands over her, and she saw them through a mist, for a moment side by side.

At this moment of extreme agitation and excitement, Lady Markham's butler suddenly opened the drawing-room door. He came in with that solemnity of countenance with which, in his class, it is thought proper to name all that is preliminary to death. 'If you please, my lady,' he said, 'there's a man below has come to say that the fever's come to a crisis, and that there's a change.'

'You mean Captain Gaunt,' cried Lady Markham, rising with a half-stupefied look. She was so much worn by these divers emotions, that she did not see where she went.

'Captain Gaunt!' said Constance with a low cry.

(To be concluded.)

'OLD FOLKS WILL SERVE YOU BEST.'

WE once heard of a boy who described his aunt as 'past thirty, but still active;' and certainly mental and bodily activity are not attributed to the sex if they want to earn a livelihood much after that period. The matter of premature superannuation affects both sexes, however, and we cannot do better than make as a text of our discourse the following wise saw, culled from a volume of epigrams lately published by the poet William Allingham:

Old folks, though weak, will serve you best; of late,
Conscience in work is gone quite out of date.

Never were words more appropriately spoken, and never was the truth they convey more

painfully brought home to our minds than in the present day! Not only in the humbler walks of life, where the breadwinner's chances depend mainly upon sinews and muscle, but in superior callings, where experience and tested aptitude should be the first requisites, qualities with which bodily prowess has nothing to do, we find the same premium put upon inexperience and incapacity. The man of fifty, from the admiral down to the city clerk, who, without any fault of his own, is compelled to seek employment, is set aside simply because he happens not to be ten or fifteen years younger. One might suppose, indeed, that at fifty a human being's intellectual faculties in the natural order of things fail him altogether, and that, like the unfortunate Immortals in *Gulliver's Travels* who were despised at eighty, he is 'held incapable of any employment of trust or profit.'

The case of women is harder still. A woman's youth, from a business point of view, is short-lived indeed. Working women may be past thirty but still active, for all employers care! Female assistants must be younger than that wonderful boy's aunt, for instance, since we rarely by any chance find any but quite young women behind a counter. Older ones could do the necessary work as well, and even better. They are, however, less ornamental, and contribute less to the agreeable aspect of the place. But the question arises, unless these superannuated shopwomen marry, what becomes of them? What is the future of these discarded ones 'past thirty, but still active?' We are driven into the belief that as the openings for them are fewer even than their contemporaries of the other sex, large numbers drift away on the sea of misery and destitution.

Rich ladies, the wealthy spinsters, who, as we are told, are to constitute such a force in English society fifty years hence, could hardly spend their money better than in opening shops and business houses for which the qualification should be 'past thirty, but still active.'

Here, also, is a hint for our Postmaster-general. Why should female clerks in the postal service consist of pert giglets hardly out of their teens? Here is an occupation for women till eyesight and bodily strength begin to fail, and this is not often the case till they have attained their fiftieth or even sixtieth year. Many women, indeed, can achieve as much mental and bodily work at sixty-five as in the heyday of youth.

The short-sightedness of this undue deference paid to youth is self-evident. Perhaps in no age was youth so self-asserting, arrogant, and wanting in respect, as now. Our young men and young women, especially those who have had exceptional advantages in the matter of education and culture, wholly fail to realise their proper place in society, and what they owe to their forerunners and elders; so true are these wise words of Goethe: 'There is one thing no one brings with him into the world, and it is a thing on which everything else depends; that thing by means of which every man that is born into the world becomes truly manly—namely, Reverence.'

Our German neighbours, indeed, have a proverb, which, cruelly ironic as it sounds, is not

without truth: *Jugend hat keine Tugend* (Youth has no virtue); and true it is that, for certain virtues, it would be unreasonable to look to youth; yet these are some of the very qualities most needed in the conduct of human affairs, such as experience, disinterestedness, assiduity—in short, that conscience in work which our poet tells us is out of date.

A certain measure of indifference, selfishness, insensibility to the interests of others, general indifference, is inseparable from that period of existence, when all is expectation and looking forward. Duty, in the larger sense of the word, the measure of justice one human being is bound to deal out to another in the least as well as the most trifling transaction, the sense of responsibility only age can give—these are lessons of life not to be learned at once. Later on, during those brief years allotted to both sexes, by custom and general opinion, as their prime, men, no more than women, are likely to do their work better than when, from a business point of view, they are set aside as incapable. On the contrary, the daily discharge of routine duties, however irksome, will be easier to those who have learned, perhaps by bitter experience, the value of time, of money, and of conscience. Granting that a man or woman of sixty may not be able to get through so much work in the same time as those half their age, is not the conscience put into the work to be taken into consideration? True enough is it, as our poet says:

Conscience in work is quite grown out of date.

Never were wages so high, never expectations of work-people so exalted as now, and never was it more difficult to get any piece of manual work efficiently done. The job is got through somehow, paid for, and there is an end of the matter.

Old servants, too, are rapidly running out of date. The time-honoured retainers of former years are now replaced by pretty girls and smart young men, who stay with each employer just till they can improve their position, and no more; whereas serving-folks who have grown gray in their master's service, naturally have their interests at heart, and prevent that spoliation in the kitchen which goes well-nigh to ruin so many families.

Youth has charms. 'A pretty girl is the poetry of the work-a-day world,' says one of our novelists. Unfortunately, the greater part of human affairs has to do with bare prose; and for the daily transactions of business, bright eyes, rosy cheeks, and a slim figure, are less necessary than steadiness, rectitude, and unswerving devotion to work-a-day duty.

AT TREVENNA COTTAGE.

A STORY IN EIGHT CHAPTERS.—CHAP. IV.

NOTWITHSTANDING their late vigil, Captain Ivory and his wife were up betimes next morning, and had breakfasted by nine o'clock. Then Susan was sent to the *Crown Hotel* for a fly, which presently drove up to the gate. Then the captain and his wife appeared, equipped to encounter the weather, which was still broken and stormy, and were driven away. But when the fly had climbed the slope on which the scattered houses

of Boscombe are built, and had reached the high-road which skirts its summit, the captain alighted. His road lay one way, and that of his wife the other. Mrs. Avory's destination was Alvebury, a small town some half-dozen miles away, at which place there was no one to whom she was known. Her object in going there was to post her husband's reply to his cousin's letter. It would scarcely have been judicious to post at the Boscombe office a letter addressed to 'Edward Saverne, Esq.,' seeing that every one in the place was aware that a gentleman of that name had died and been buried there only a few weeks previously.

Captain Avory's answer to his cousin's letter was written from his wife's dictation. It was couched in judiciously affectionate terms, and expressed the writer's pleasure at the prospect of meeting again his long-absent relative. The captain then went on to say that he would not fail to meet his cousin at Mumpston Junction at the time stated; but should anything meanwhile intervene to delay his journey, he was requested to send a telegram informing the captain on what day and by what train he might be looked for.

When husband and wife parted at the point where their roads diverged, the captain turned up the collar of his waterproof, pulled his hat more firmly over his brows, and set his face eastward. He had the wind and rain in his teeth as he walked, and at another time he would have felt the discomforts of the weather keenly; but this morning he had far other food for his thoughts. He was bound on an errand such as none but a desperate man would think of undertaking. So long as the influence of his wife's presence was upon him, so long as the magnetism of her stronger will made itself felt, the task before him, although beset with dangers and difficulties, had yet seemed feasible and full of promise; but now that he was left to himself, his hopes and his courage at once sunk to zero. Just then, he felt as if he would gladly have given all that he had ever possessed if he could have put back the hand of time—if he could have been again as he was twelve months ago, before his wife's voice had whispered the first syllable of temptation in his ear. Ah! how readily he had yielded to it. What a golden vista her words had conjured up! Of his own free-will, he had woven the net mesh by mesh around him, till now there only remained one last desperate chance of escape. Fool, fool that he had been!

With such and other bitter thoughts gnawing at his heartstrings, he trudged doggedly forward, the whips of rain lashing his face unheeded. When he had gone about a couple of miles, the road began to trend downwards. He was nearing one end of the long irregular stretch of cliff fronting the bay, in the midst of whose green luxuriant lap bask the white villas of Boscombe Regis. So far, he had encountered no one, except a country carrier jogging slowly along on his hooded cart, and two drenched, woe-begone tramps. For this he was thankful; the fewer people he met by the way the better. But now that he was nearing his destination, a new fear gripped him like a vice. What if the man he was going in

search of was not at home, and was nowhere to be found! The thought turned him sick and dizzy, and he was obliged to come to a stand for a few moments, with his hand resting against the trunk of a tree. If Betsy Groote had one of his wandering fits on him—and what more likely?—then would Mrs. Avory's cunningly elaborated scheme collapse as at a breath, leaving behind it nothing save ruin black and irretrievable.

He took a flask of brandy from his pocket, and administered to himself a liberal dose of its contents. It brought back a little colour to his pinched features, and nerved him with a sort of dogged courage to face whatever the next half-hour might have in store for him.

Still deeper dipped the road, while the growth of timber on either hand broadened out into a gloomy plantation, through whose intricacies nothing could be discerned. Another quarter of a mile, as the captain was aware, would have brought him to the end of the plantation and on a level with the shore. After about a mile of this level sandy road, with the sea full in view on the right, it began to climb again and wind its way over the shoulder of the easternmost of the two headlands which shut in Boscombe Bay. On the other side of this headland, and almost in its shadow when the sun was drawing toward the west, lay the little fishing hamlet of Cawdray.

But not so far as this would Captain Avory's footsteps take him to-day. While still in the deepest shadow of the plantation, he slackened his pace, and keeping his eyes on the hedge of blackberry bushes which bordered the road on the right, he went slowly forward till he apparently found the sign for which he was looking. What that sign was, was best known to himself; in any case, his face brightened a little; and having first given a glance up the road, then down it, and seeing no one coming either way, he pushed through a small gap in the prickly hedge, and proceeded to thread the mazes of the plantation with the air of a man to whom they were not altogether unfamiliar. Five minutes' walking brought him to the further edge of the wood and in full view of a broad reach of sandy shore, with the gray, heaving waters of the Channel widening out beyond till they lost themselves in the rain-smitten horizon.

But Captain Avory had no eyes this morning save for one object, and that object was the ruinous and blackened remains of what had once been a two-storied dwelling, which stood at a point where the trees had gone down to meet the sands, or it might be where the sands had crept up to meet the trees. The house was roofless except one corner of it, and only one chimney was left standing. But when from that chimney the captain saw a thin spiral of smoke slowly crawling, his heart gave a great throb of relief. It was the sign and signal that Betsy Groote was at home, and he felt as if one-half of his errand were already accomplished. As Captain Avory picked his way, first along the sand, and then over a scattered heap of stones which had once formed part of the boundary-wall of the house, he became aware of the sound of music. 'It's Betsy with his fiddle,' he muttered. After pausing

for a moment to listen, he crossed a paved courtyard, the pavement of which was now buried inches deep under the ever-shifting sand; and unceremoniously opening a door made of boards roughly nailed together, he halted on the threshold and surveyed the scene before him.

The room into which he now peered had originally been the kitchen of the burned-out house, and was the only part that was left with a roof on it; but even here the intermediate flooring between the upper and the lower stories had been burned away, so that when you looked up, you saw nothing above you but half-charred rafters and the slates of the roof. That this roof was by no means weather-proof was proved by three or four patches of rain-water on different parts of the floor. The wide old-fashioned window, in which not a single pane was left, was roughly boarded up, except a space of a few inches at the top. Such daylight as there was in the place found its way through this aperture. The room was furnished, if furnished it could be called, in the simplest possible style. A couple of three-legged stools, an empty cask for a table, a low rough pallet in one corner covered with a bag of straw and a couple of horse-rugs, a frying-pan, a kettle, and a tin teapot, together with a plate and mug of the same ware, comprised the whole of the visible effects. The fireplace was low and wide; but the grate had been torn away years ago, and its place was now filled by a dozen or so of loose bricks, in the midst of which smouldered a few dying embers.

The sole occupant of this wretched domicile was a man who was sitting cross-legged on the pallet in the corner playing the fiddle, and whose age might have been anything between thirty and fifty. As he sat there, he looked like a man who at the least would stand six feet in height, so broad were his shoulders, so long and muscular his arms. But when he stood up it was seen that, large as his body was, his lower extremities were those of a dwarf. To add to the incongruity of his appearance, his shrunken legs bowed out below the knees, as if unable to sustain the weight above them, and when he walked, or rather waddled, he turned his feet inward. He had a large head, and a long thin face seamed and lined through much exposure to the weather. He had a long vulture nose, the end of which came to within a quarter of an inch of his mouth. His eyes were as keen and rapacious as those of some bird of prey. His long black hair hung in tangled locks round his shoulders, and his head was crowned with a high conical hat of soft black felt, much the worse for wear.

At the moment of Ivory's entrance, this singular being was scraping away at some nightmare improvisation of his own, which seemed to have neither beginning, middle, nor end; but which, lacking all method though it did, was not devoid of a certain weird originality. He looked up and nodded as the captain's figure darkened the doorway.

'How do, cap'en?'

'How do you do, Bony? How's the world using you by this time?'

'About as well as I'm using it, cap'en, I reckon; and that ain't no great shakes.'

'Well, cease that caterwauling, there's a good

fellow. I've a matter of business to talk to you about.'

'Caterwauling? Oh! It's a little thing of my own, cap'en, as sweet as early dewdrops, and as pathetic as the lowing of a bull-calf.' As he spoke, he put away the fiddle on a shelf behind him and slid to the ground. 'Be seated, my noble prince,' he said, indicating one of the stools with a wave of his arm. With that, he stirred up the dying embers; and seating himself on the other stool, he crossed one crooked leg over the knee of the other and glanced up keenly at his visitor.

Captain Ivory's first proceeding was to bring out his flask—it held a quart—and place it on the head of the empty cask. Bony's eyes sparkled, and he smacked his lips involuntarily. The captain's next proceeding was to produce a small canvas bag, half full of gold; this, after a preliminary chink, he placed beside the flask. At sight of this, Bony's eyes seemed to strike fire. Next he brought out his meerschaum and tobacco-pouch, and having filled the former, he passed the pouch to Bony, who produced a short black pipe from his waistcoat pocket and proceeded to follow his visitor's example. No sooner were the pipes fairly under way, than the captain helped Bony and himself to a liberal supply of brandy. Bony drank his, undiluted, out of the tin pannikin. 'It's good enough for me without water,' he said, as again he smacked his lips.

'Now for business,' said the captain.

'Ay, now for business,' responded Bony, drawing his stool a little nearer that of the other.

It is not needful to set down all that passed at the interview between these two strangely assorted companions; what resulted from it we shall learn later on.

Hoogies—how it came by its name no one seemed to know—might with reason be termed the ancestral home of Bony, or Ambrose Groote, seeing that it had been built by his great-great-grandfather a century and a half ago, and that each succeeding generation had made it their home. Originally, there had been fifty or sixty acres of land attached to the house, but that had got into other hands long ago. Then, the Grootes had always kept up a connection with the fishing-trade, and time out of mind had owned two or three of the Cawdray smacks. But, more than all else, they had been noted smugglers at a time when smuggling was a lucrative and semi-respectable profession. It was Bony's father who first squandered the property, which had come down to him from three generations of thrifty ancestors. He was a lazy, drunken ne'er-do-weel, who attended every race within a circuit of fifty miles, and was fleeced by men as unscrupulous as himself, but far more cunning. At length the last fishing-boat had to be sold to pay creditors who would no longer be denied; and after that, Marvel Groote would seem to have gone rapidly from bad to worse. There were dark whispers afloat respecting a pedlar who had been seen going towards Hoogies in the dusk of an autumn evening and who from that hour had disappeared. It was even said that the fever which little Bony Groote had about this time—he was then five or six years old—which left him with a warp of the mind from which he never recovered,

had its origin in a terrible fright—that, in fact, the child waking up in the middle of the night, had seen his father dragging the pedlar's body down-stairs to its ready-made grave in the garden. But it could scarcely have been anything more than surmise on the part of those who whispered this strange story to each other. In any case, a year or two later, Marvel Groote brought matters to a characteristic climax by setting fire to the house in one of his drunken fits and making it at the same time his own funeral pyre. After that, Bosy and his mother disappeared; and as years passed away, their names and very existence were almost forgotten.

A quarter of a century had come and gone when Bosy Groote found his way back alone to the ruined home of his youth. The place had an uncanny reputation, and had never been rebuilt. The sands had gradually encroached on it till what had formerly been a smiling garden, was now as waste and barren as the rest of the shore. Cottagers from the neighbouring village who wanted to build a pigsty or inclose a patch of ground had made a free use of the materials which were here ready to their hands; and there is little doubt that had not Bosy returned, the whole house would have disappeared piecemeal in the course of a few more years. Such as it was, however, Bosy now made it his home.

Five years had passed since his return. How he lived, no one seemed to know or care. He had no friends, was intimate with no one, and, so far as was known, no foot but his own ever crossed his threshold. In summer, when the weather was fine and the days long, he would wander about the country-side with his fiddle, playing at merry-makings and junketings of various kinds, and be rewarded by sixpence here or a shilling there, together with as much to eat and drink as he wanted, and now and then with permission to sleep in a barn or outhouse. Bosy, in fact, was a familiar figure within a circuit of twenty miles round Boscombe. It was generally held that he was not quite right in his mind, though in what particular he differed from other people no one seemed able clearly to define. Others there were who held that he was just as sane as his neighbours, and that it was only to serve his own ends that he rather encouraged the idea of his being mentally deficient. Be this as it may, every one looked upon Bosy as being thoroughly harmless—although, curious to relate, little children seemed to have some instinctive dread of him, and always ran to their mothers the moment they set eyes on him.

Occasionally during the winter, Bosy would disappear from his usual haunts for three or four months together, and no one ever knew what became of him at such times. If questioned, he would say: 'I've just come back from a visit to the man in the moon. He and I are old cronies. I play to him, and he sings to me; only he has such a queer, cracked voice, that it makes me nearly die of laughing to hear him. But I'm glad to get back again, for it's mortal cold up there, I can tell you.'

It only now remains to be explained how Captain Avory and Bosy Groote came to be on such intimate terms. When the captain was a boy, he spent a year at a school at Boscombe Regis; but this was a fact which he now kept

carefully to himself. One day, when out walking, accompanied by his master's Newfoundland dog, he had come across a poor decrepit, half-witted lad who was being buffeted and cuffed by half-a-dozen boys bigger than himself. Young Avory had at once taken sides with the weaker; and by threatening to set his dog on the lad's tormentors, had effectually scared them away. Bosy Groote had never forgotten this service; and when the two men met more than thirty years later, they mutually recognised each other. More than once since then, the captain had found his way to Hoogies.

The flask was nearly empty, and they had refilled their pipes more than once before the captain and Bosy brought their talk to an end. When they had arranged all preliminaries to their satisfaction, the captain opened the canvas bag and proceeded to count out ten bright new sovereigns into his companion's long lean hand. 'There will be ten more for you,' he said, 'as soon as what we have to do is fairly completed.'

The moment Bosy's fingers closed on the gold, he gave utterance to a peculiar half-idiotic chuckle, which even startled the captain for a moment.

'By Jove!' he muttered, 'I should not like to be here alone with him at night if he thought I had much money about me.—Don't forget,' he said as he rose, 'that you are to be at the Cottage not a minute later than eight o'clock on Monday evening next. It will be quite dark at that time; but should any one be about, wait till he is gone before you open the garden gate. Mrs Avory will be prepared to receive you, and will give you some supper. I shall not reach the Cottage till about half-past nine. You clearly understand?'

'Of course I understand, my noble prince; I ain't neither deaf nor stupid. I'll be there to the time, never fear.—What a lark it will be, though, for the poor gentleman. Ho, ho, ho! I can't help laughing; it will be such fun for all of us, but 'specially for him!'

(To be concluded.)

THE MONTH: SCIENCE AND ARTS.

THE Canadian Pacific Railway is now completed, and on the 8th November the first through-train from Montreal arrived at Vancouver. The line is two thousand eight hundred miles long, and the average speed, including stoppages, was twenty-four miles per hour. With the advantages open to travellers by the construction of this railway, it will before long be possible to travel from Liverpool to the Pacific in ten days.

The Madrid Commission appointed to investigate the question of the efficacy of inoculation as a remedy against cholera—a question which has raised such fierce discussions in Spain for and against the originator of the operation, Dr Ferran—has issued its verdict. The Commission is of opinion that the inoculations cannot be considered inoffensive, and that the epidemic is actually propagated by them. Nor is it demonstrated by the results that the inoculations secure immunity from cholera. Moreover, the person

inoculated is for the first few days rendered more susceptible to contract any other form of disease. This adverse verdict will be a sore disappointment to those who believed that an antidote to a most terrible disease had at last been found.

From experiments lately carried out in the Aquarium at the Inventions Exhibition respecting the sleep of fishes, it appears that sleep is common to certain fish, and that all take rest at intervals. Roach, perch, gudgeon, tench, and some others rest periodically; and among marine fish, dory, conger-eel, dogfish, and all flat-fish seem to have the same instincts. Others seem to be ever wakeful, although they rest occasionally. The pike is an example of these latter. This fresh-water shark, though he may poise himself motionless for hours together and appear to be lethargic and lazy, is nevertheless always wakeful, and on the lookout for the wherewithal to satisfy his voracious appetite. At the Brighton Aquarium, not long ago, we observed how in one tank a beautiful company of silvery herrings were sailing unceasingly round a central rock. We were informed that the busy crowd rested, suspended in the water, directly the lights were extinguished every night.

All old sailors know that the best ropes that can be made are those produced from Manila hemp-fibre, and they also know that lives will often depend upon the trustworthiness of such a rope. Hitherto, no inferior fibre was known that could be mixed with true Manila without ready detection. But unscrupulous dealers have discovered in a fibre known as Sisal hemp—which comes from Sisal, Yucatan, in the Gulf of Mexico—an adulterant which, while resembling true Manila hemp, has the advantage of being much cheaper. A fact, too, with which they do not care to concern themselves is, that the new material possesses only half the strength of that which in other respects it imitates so well.

Messrs Frost, well-known rope-manufacturers, have recently pointed out that a ready test exists for detecting rope which has been thus sophisticated, a test of such a simple nature, that any one can make it without special apparatus. Taking three pieces of rope—one of pure Manila, one of Sisal, and one of the two fibres mixed together—they separate the untwisted threads, and roll each into a little ball between the palms of the hands. The three little woolly balls are now burned on an iron shovel, with the result that the pile of ash which each leaves is quite different from the others. The Manila hemp gives a grayish-black ash; the Sisal, a whitish gray; while the adulterated rope furnishes a residue in which each tone of colour is readily distinguishable. This simple and ready test of such a really important article of commerce will, it is hoped, make shipowners and those of whom they buy their ropes both more careful of the quality of the goods supplied.

The old admonition, 'Do not speak to the man at the wheel,' which appears on most steam-vessels, may now possibly have to be supplemented by another to the effect that umbrellas must not be brought near the compass needle. On a recent occasion, such an apparently innocent instrument seriously interfered with the correct working of a

ship's compass. Upon examination by experts, the umbrella was found to be powerfully magnetised. Its owner had probably stood with it at some time near a working dynamo-machine, and magnetic induction had done the rest. We may remind our readers of a fact not generally known, that the steel parts of watches are often affected in the same way if their owners bring them near such machines, and a correct timekeeper can be rendered quite untrustworthy in that manner.

The explosion of the one hundred and forty tons of dynamite which were used to destroy Flood Rock—the great obstruction in New York Harbour—was successfully carried out last month. The shock lasted forty seconds, and was accompanied by a huge mountain of water, which rose to a height of two hundred feet above the spot where the mine was laid. Although the tremor caused by the shock was felt for many miles, it occasioned no damage to property. Timid people can take some comfort from this last circumstance; it shows that the villainous threats which have been made to destroy our cities by dynamite are simply impossible of realisation. In the case before us, the work of preparation has occupied the time and labour of skilled engineers for ten years, while of course they had the countenance and assistance of the authorities in all they did. Criminal attempts would have to be made under far different conditions.

Mr Joseph Thomson's expedition to the Niger some nine months ago, which we briefly chronicled at the time, has just terminated, and he has returned to England, having accomplished his mission with the greatest success. It will be remembered that he went out under the auspices of the African Trading Company to secure the good-will of the natives and their rulers, and to open up a large district to the civilising influences of commerce with Britain. The traveller speaks well of the prospects of a good trade in the region which he has explored, and he tells us that the country is densely populated, not by naked savages, but by Mohammedan tribes. He humorously describes them as having a passion for voluminous wrappings—'people who take fourteen yards of cloth to make a pair of trousers, and quite as many for a turban.' The country is not unhealthy, and is extremely fertile.

In the middle of last month, a shower of fine sand fell in various parts of Italy and Sicily. The chief of one of the Italian observatories reports that the phenomenon was accompanied by a strong south-west wind. The shower of dust obscured the view of the neighbouring mountains, and the plants were all covered with an abundant reddish-yellow layer of sand. In the *Times*, the phenomenon is described at length as a 'shower of meteoric sand;' but there is no proof given that the falling particles had their origin beyond the confines of the earth.

The telpherage system of automatically transporting goods from one place to another by the agency of electricity, which was invented by the late Professor Fleeming Jenkin, has now assumed practical shape; for a roadway on this principle was opened last month at Glynde, in Sussex. The line is a double one, and consists of horizontally laid steel rods supported at intervals on T-shaped poles eighteen feet high. The cross-piece of the T is eight feet long, and one of the steel

rods rests at either end. Trough-shaped buckets, each holding about two hundredweights, are suspended on light frames furnished with grooved wheels which run on the steel rods. A train of ten such buckets is driven by an electro motor, and the duty of the present system is to convey clay from the pit to a siding, whence it is carried in trucks to some cement works. The opening of this novel mode of conveyance aroused much interest. It is said to work well, but in several minor details can be improved.

The use of automatic sprinklers for the extinction of fires seems now to be attracting very general attention among owners of mills and warehouses. According to Professor Sylvanus Thompson, of the Finsbury Technical College, one English firm alone has fitted up no fewer than twenty thousand of these contrivances in different parts of the country. Mr Thompson gives it as his opinion that as insurance rates rise with the risk, it will in many cases pay better to put up sprinklers, than to insure. We may remind our readers that these sprinklers are immediately put into action by any sudden rise in the temperature of the apartment where they are placed. An incipient fire is thus smothered at the time when water can do the best service, that is to say, at the very first outbreak.

The question of the possibility of heating steam-boilers, and more particularly the boilers of marine engines, by means of liquid fuel, has, as we have on former occasions hinted, for many years occupied the attention of engineers. In Russia, the problem has been already solved, both in the case of railways and steam-vessels, many of the latter which run on the Caspian Sea being served with fuel of that kind. In Britain, innumerable experiments have been made in this direction without affording any practical result; but at length a trading vessel of eight hundred tons burden, the *Himalaya*, has been fitted with the necessary apparatus, which is found to work in the most satisfactory manner. This apparatus consists of a coil of pipe conveying superheated steam from the boiler, with a smaller pipe within it at its point of delivery, for the reception of the liquid fuel, which flows from tanks on deck. The rush of steam carries the petroleum forward in the form of spray into a combustion chamber which occupies the place of the ordinary furnace. The *Himalaya* formerly carried two hundred and forty tons of coal, and her consumption of that fuel was estimated at nine tons per day. This bulky fuel is now superseded by oil. The advantage of the latter over the former is obvious so far as saving of space is concerned. Early in November, the *Himalaya* reached Granton from London, when it was found that the consumption of oil on the voyage had been little over eight gallons per hour, costing about one pound per day, which, when compared with the cost of coal, is one-seventh. It may be added that in addition to the saving in coal, a corresponding saving in labour was effected, two firemen doing the duty of five.

The Midland Railway Company are about to try the experiment of substituting steel sleepers for the wooden ones hitherto in use, and with that object, have ordered a sample lot of five thousand, which will be made in Belgium. It

appears that none of our British firms possessed the necessary plant to carry out such an order, except at a price that was far in excess of that demanded by the Belgian firm, which already has made steel sleepers for use in that country.

The street tramways of Birmingham are about to be remodelled, and the town-council have unanimously decided to adopt the cable system of traction. This system has already been extensively applied in America; but as yet we are able to point to only one example of it in this country—namely, on Highgate Hill, London, where it continues to work satisfactorily.

An essay upon 'Paper and the Industries connected with it,' which was recently read before the Académie des Sciences by M. Bontarel, contained some remarkable statistics. In the United States alone, paper is made to the amount of half a million tons annually, while at the beginning of the century none at all was made in that country. In Europe, that amount is just doubled. The value of the raw material on this side of the Atlantic is worth twenty millions sterling. There are also some wonderful figures given regarding the number of steel pens and lead pencils, which in these days are in such demand among civilised nations.

A New York journal tells us of a traveller who recently brought from certain Peruvian sepulchres a collection of petrified human eyes, which he handed to a jeweller to be set in gold and arranged as a necklace. The workmen while executing the order became ill one after the other, and their indisposition was supposed to be due to the mineral poisons used in the embalming process. The whole story is rather a ghastly one, and we are glad to see that Professor Flower, of the British Natural History Museum, has destroyed its most repulsive feature. He says that 'the objects referred to are not human eyes, but the dried crystalline lenses of the eyes of a species of cuttlefish which were used as ornaments by the ancient inhabitants of South America, and are often found in their graves.'

It seems but the other day that our troops were armed with the Snider rifle, the performance of which was such a marked improvement upon that of the old muzzle-loader. But the Snider was soon replaced by the Martini-Henry; and now even that wonderful weapon of precision is to be superseded by a new army service rifle. In the new arm the diameter of the bore is reduced, the weight of the bullet is reduced also by as much as one-fifth, while the powder-charge remains as before. By these and other means, the muzzle velocity of the bullet will be greatly increased, and the trajectory lowered, while the recoil will be less, and the general accuracy of shooting much improved. It is not yet decided whether a detachable magazine, which would practically turn the weapon into a repeating rifle, is to be added.

In one of those ingenious romances by Jules Verne in which science is so pleasantly blended with fiction, a submarine boat is described. This boat travels on or under the water at the will of its captain, sinks or rises to the surface, and is used for the destruction of other vessels, should occasion arise. The romance has become a reality.

The Nordenfolt submarine boat, recently publicly tried in Sweden, will do nearly all that was credited to its imaginary prototype. Such a vessel armed with torpedoes and able to creep beneath the vessels of a hostile fleet totally unperceived, is a possibility almost too terrible to contemplate. Its invention, however, need not be deplored, for it brings us nearer to that time when instincts of self-preservation will compel every nation to seek arbitration rather than war.

The Telegraph Construction and Maintenance Company are now carrying out an experiment on our east coast which may in its results be of the greatest commercial importance not only to ourselves but to other nationalities. They have demonstrated the possibility of holding constant communication by telephone with a light-ship moored ten miles away. Such light-ships are plentiful enough on our east coasts, where they guard vessels from running aground on the innumerable sandbanks which abound there. Signals from such light-vessels are made when any ship runs aground, and there are never wanting hardy men who will launch their boats from the coast when such signals are seen or heard. But it is obvious that if each floating beacon were in electrical communication with the mainland, the exact place of a ship in distress could at once be telephoned, and much time in that way saved. Having practically demonstrated to them that the thing is possible, the authorities will surely lose no time in arranging that every light-ship on our coasts shall be in electrical communication with the shore.

It has been calculated that the Kimberley diamond region has produced since the year 1870 more diamonds than were yielded by all the mines in the world during two centuries preceding that date. The selling price since 1882 has been reduced nearly one-half, and it is generally admitted that over-production is responsible for this. People who have capital locked up in the form of these costly gems have reason, therefore, to be anxious about their reduction in value. There is also the possibility that science will point out how carbon can be artificially produced in its purest crystalline form, so as to become the veritable diamond. Indeed, the problem has been already solved, but the gems produced have been very small, and the cost of getting them far out of proportion to their market value.

Our American friends are fond of the colossal in every way. Their last work, which they facetiously call the eighth wonder of the world, takes the form of a huge model elephant, compared with which the largest known specimen of the living animal is but a pigmy. The erection was at first intended for an hotel; but the idea has degenerated into a mere show-place, which in the hands of a Company is to attract sightseers. With a length of one hundred and fifty feet, and a height of nearly one hundred feet, the edifice presents features of engineering skill which are well worthy of remark. Built of timber, the structure is covered with a skin of tin-plate. The entire weight of the building, if it may be called so, is one hundred thousand tons. It is situated on Coney Island.

The longest conduit ever made will be represented by the pipe which it is proposed to lay

down from Baku to Batoum. Its duty will be to carry petroleum from the one place to the other, a distance of five hundred and thirty miles.

INVENTIONS.*

A NEW LIFE-BUOY.

A LIFE-BUOY possessing several most novel and useful features has recently been brought before the public. The body of the invention is a large circular copper case, in shape similar to the familiar cork and canvas life-buoys. In order that its utility shall not be destroyed by the accidental presence of a crack or puncture, this circular copper case is divided into eight watertight compartments. There is a recess in the metal containing a spirit-flask and a whistle. At opposite sides of the buoy, the two ends of a chain are attached, and the loop thus formed, which is pendent about three feet, is intended as a foothold for the 'man overboard.' An attached loop of rope and a metal ring are for the purpose of suspending the buoy, in readiness for use, over the vessel's side, and also, when it has been called into practical requirement, of hoisting it with its human burden upon deck. But the feature of the 'Whitby' Buoy upon which it may mainly rest its chief claim to usefulness and novelty is its illuminant. On opposite points on the outside of the invention are metal loops, through which run tubes having above a length of about a couple of feet, and having small canisters attached immediately below. These canisters contain quantities of calcium, which, as it may be necessary to explain to the less scientific of our readers, is a yellowish-white metal intermediate between lead and gold in hardness, and present in chalk, stucco, and other compounds of lime. When calcium is placed in contact with water, the latter rapidly decomposes, with the result that lime is formed, and hydrogen escapes. Owing to the construction of the canisters, when the buoy is thrown into the sea, the water comes in contact with the chemical, and flames are at once produced automatically at the summit of the tubes. The calcium contained in the canisters is sufficient to produce an illuminant capable of burning for one hour. It should be mentioned that the buoy is furnished with supplementary hand-lights, and that flags, upon staffs of a foot or so in length, are in readiness to be attached to the ends of the metal tubes. Though the contrivance is primarily constructed with a view to be used by one individual, it possesses a buoyancy capable of sustaining two or more men upon the surface of the water.

One of the chief advantages possessed by the buoy is the easy method by which it admits of being hoisted on board with its living freight. Preceding contrivances have necessitated the lowering of a boat, a feat which, in a very high sea, is attended with great difficulty and danger, and which sometimes is actually impossible. The various means by which any one overboard in possession of the life-buoy can, with his flags, his lights, and his whistle, effect the end which is so

* These inventions, and others that may follow, are not all necessarily recent.

desirable, and indicate his whereabouts, must commend themselves to every one. The 'Whitby' Life-buoy is being supplied by Messrs J. W. Gray and Son, of 115 Leadenhall Street, London, to the royal navy, and bids fair to supersede the old service-buoy.

The invention was recently formally put to trial from the royal yacht *Osborne*, in the presence of the Prince of Wales, Lord Charles Beresford, and a distinguished gathering, when the results were such as to give general satisfaction. Lord Charles reports that it is 'vastly superior to the service-buoy,' and that he 'never saw anything more perfect.'

A 'WASHABLE' WALL-PAPER.

Messrs Storey, Bros. & Co. of Lancaster have brought out a novelty which would seem to possess no little utility. It is a fabric for covering walls, to which the name of 'Tectoreum' has been given. While it possesses an artistic appearance, it can be repeatedly and thoroughly washed with soap and water without suffering any injury, being entirely impervious to damp. It is very durable, is as cheap as ordinary wall-paper, and can be applied in the usual way; while inasmuch as it checks the inroads of damp into a room, it can lay claim to hygienic qualities. It has always been possible to clean, by diverse means, the different articles of domestic furniture; and the only structural portions of a room which one has not been able thoroughly to wash have been the walls. With the new material in use, the walls may be scoured as freely as the floor; and the consequent advantages in the case of hospitals, schools, and other buildings, in which perfect cleanliness is so essential, will be considerable.

A WINDOW FIRE-ESCAPE APPARATUS.

What seems to be a useful mechanism for affording a means of escape, independent of outside aid, from the window of a house whose lower parts are enveloped in flames, has been patented by Mr H. Hargreaves, of 92 Osborne Road, Forestgate, London, E. The appliance—which is intended to be stowed beneath the dressing-table that usually stands before the window of a bedroom—consists of a vessel or bag capable of holding several persons, a stout iron framework partially covered with a stretch of canvas and an apparatus for paying out and receiving in two stout ropes. This apparatus is fixed inside the room just below the window-sill, and consists of an axle having at one extremity a winch-handle, and carrying two rope-reels controlled by a powerful hand-brake. Upon a fire occurring, the dressing-table is removed; the iron framework is turned upon its hinges through the open window so as to lie at right angles to the wall of the building; and the bag—to either side of which the ropes are attached—is hoisted through the sash and dropped through the projecting iron frame, immediately before the stretch of canvas. Thus the apparatus is in readiness for use; and we are told that the operations up to this point need not have occupied eight seconds. The individual who has constituted himself, or herself, the operator now assists the escaping persons on to the canvas

platform and into the pendent bag. No difficulty is encountered here, young children, aged persons, and invalids being able to enter the vessel with readiness. The first contingent in, the operator manipulates the brake and lowers the bag to the ground; raising it again, when it has discharged its occupants, by means of the winch-handle. If there still remain any persons in the burning house besides the operator, he again proceeds to lower them in the manner described. Afterwards, he has to busy himself with his own safety, for effecting which, special facilities are afforded. He has done with the gear previously manipulated, and now turns his attention to two independent ropes, coiled on reels in the bag itself. The ends he hooks on to the iron framework, immediately afterwards entering the bag, and lowering himself to the ground by means of a small brake attached to the reels. We are assured that even young children of either sex can be readily instructed to use the apparatus with ease and perfect safety.

A NEW SYSTEM OF DREDGING.

A novel system of dredging, but one which seems likely to supersede former imperfect methods, has been devised recently. A vessel propelled by hydraulic power is employed, the time selected for operation being an ebb-tide, and from this vessel specially devised telescopic tubes project beneath. Water is forced through these under immense pressure, and in powerful jets or streams enters the accumulations of sand, mud, &c.—known as 'silt'—which it is desired to remove from the bed of the channel. The silt at once rises, and in accordance with one of the laws of hydraulics, is held in suspension, and carried along by the tide. The inventor of the new system—Mr B. H. Thwaite, of 37 Victoria Street, Liverpool—says that as the vessel is gradually propelled through the water, enormous accumulations of silt can be disturbed and removed in a mere fraction of the time required by the usual dredging operations.

HOW TO BECOME A PATENTEE.

By an Amending Act, passed on the fourteenth of August of this year, some slight changes were introduced in the procedure of obtaining a patent. Under the principal Act, complete specifications had to be sent in within nine months of making application for a patent, and had to be accepted within twelve months of the same time. By the payment of a small fee to the Comptroller, that official may now, if he think right, extend the two periods by one month and three months respectively; and where such extension is allowed, an extension of four months is allowed for sealing the patent. Under the old Act, the period was fifteen months. It will be seen, therefore, that a patent must be sealed within nineteen months of making the application, which otherwise becomes void. Previous to the passing of the Amending Act, provisional specifications and drawings were open to the public; but they are now neither open to public inspection nor are they published. Inventors who abandon their applications, do not, therefore, by their attempt to obtain a patent, let the world into their secrets, as was formerly the case. It appears that doubts

arose whether, under the principal Act, persons, one of whom only was the inventor, could jointly obtain letters-patent. By the Amending Act it is declared that it has been and is lawful to grant such patents under the principal Act.

MECHANICAL SUBSTITUTE FOR A HORSE.

Some time ago, a gentleman who was prevented, by physical disqualification, from continuing the exercise on horseback which had always been so beneficial to his health, was possessed with the singular notion that it would be possible to construct a machine which, when seated upon, could be made to evolve the same action as a galloping horse. The inventor made his machine; it answered its purpose to his complete satisfaction; and the device having been patented, it has recently been manufactured and brought before the public. Whimsical as is the purpose of the machine, it has upon trial been commended by many medical authorities, and won no little favour. The 'rider' seats himself upon an ordinary leather saddle, his feet being in fixed stirrups, and his hands grasping a handle attached to a metal projection. The saddle is firmly attached to a small wooden platform below by means of metal connections. This platform is suspended by leather straps from the topmost extremities of four semicircular steel springs, which are firmly attached at the bottom to the metal foundation of the machine. Seated upon the saddle, the operator can be swayed about in all directions. Beneath the platform are four padded buffers—corresponding to the horse's feet—and by the weight and motion of the operator's body, these buffers strike or bump, at each depression, upon the foundation below, so that, with a little practice, an automatic imitation of horse-exercise can be produced. The movement can be made either very easy or very violent. By the full use of the handle, a good muscular action is said to be given to the chest and lungs. For invalids and all of a weak bodily constitution, the machine is strongly recommended. It is adjustable for the use of persons of different stature and weight; and for those condemned to sedentary employment, its daily use is said to be attended with beneficial results. The Automatic Horse-exercising Machine is manufactured by the Western Mechanical Company, Exeter.

OCCASIONAL NOTES.

PASTEUR'S SUCCESSFUL TREATMENT OF HYDROPHOBIA.

A DISEASE which is perhaps more awful than Asiatic cholera has at last, there is every reason to believe, been conquered by science. M. Pasteur, who has devoted his life to the development of the Germ theory of disease, and who, by close study of the effects of inoculation on the lower animals, has saved many thousands of sheep from that terrible scourge called splenic fever, has at last demonstrated that hydrophobia in man can be cured by similar means, and two cures have already been actually accomplished.

At the Academy of Medicine, Paris, M. Pasteur has given a statement of his researches and experiments regarding hydrophobic virus, with a view to its being utilised for the purposes

of preventive inoculation. Only after having experimented on hundreds of dogs and rabbits, has he succeeded in obtaining the virus, inoculation with which is not only a means of preventing the disease among dogs, but a remedy, if taken in time, for hydrophobia in those who have been bitten. It was necessary also to perform experiments not only on animals but on men. This was a serious matter. M. Pasteur some time ago stated that he had experimented with success on a man in a hospital, but that he did not then wish to say anything of the results, as a single case did not seem to him sufficiently conclusive. However, M. Pasteur has now spoken of a second case, which was conclusive, and of a third which was in the course of treatment. A boy twelve years of age, named Meister, had come from Alsace with his mother. He had been bitten fourteen times. Inspection of the dog which had bitten him left no doubt that it had suffered from hydrophobia. M. Pasteur took the celebrated Dr Vulpian, along with a professor of the School of Medicine, to see Meister. The two doctors stated that he was doomed to a painful death and might be experimented upon. The treatment thoroughly succeeded, and Meister is in perfect health. When the treatment began, he had been bitten sixty hours, and had travelled from Alsace to Paris. A shepherd boy of fifteen, named Judith, bitten a fortnight ago, had been a week under treatment, and M. Pasteur was confident of curing him.

As to the origin of hydrophobia, M. Pasteur always says that nobody in the world can explain primal causes. As to its cure, his theory, he remarked, will require study by the profession in order to be made practical; but he emphatically stated that a cure for hydrophobia had been found.

This news is all the more welcome to us, for it comes at a time when in this country an extraordinary increase of the number of cases of rabies in dogs is reported. In South London, one veterinary surgeon alone has during the past six months had at least one case of rabies to deal with weekly; while during the same period the London coroners have had more inquests to hold on deaths from hydrophobia than they have known for many years previously. As rabies in dogs is conveyed by one animal to another by biting, and as hydrophobia in man is produced in the same way, it is obvious that a general law that all animals should wear a muzzle would very quickly stamp out the dread disease. This, however, would be punishing the great majority of innocent dogs for the infinitesimal minority of tainted ones, though in Jutland, some years back, the disease, which had assumed alarming proportions, was successfully arrested by a law which compelled all owners to chain or lock up their dogs, while the unfortunates which had no home were mercilessly killed.

UTILISATION OF WASTE FISH-PRODUCTS.

Amongst the schemes for the utilisation of what are now regarded as waste products in connection with our fisheries, is a comprehensive one promoted by Mr Nordenfelt, of gun-making celebrity, and which many of the visitors at the Aberdeen meeting of the British Association had

an opportunity of testing in a practical way. Already, there is a factory at work in Aberdeen for the realisation of this project; and it is proposed to extend operations to fishing districts in England, Scotland, and Ireland. Sir Spencer Walpole estimates that in connection with hering-curing alone we annually throw away thirty thousand tons of fish-refuse.

At the public luncheon in connection with the British Association, there was a demonstration of what could be done in the utilisation of what are now waste fish-products. Those who were present were treated to some extraordinary dishes. There were fish-extracts after the manner of Liebig, from which, with the aid of vegetables, soups were prepared. When it was explained that some of these extracts were derived from whale's flesh, the soups were regarded with some suspicion, but without reason, for they were as fresh and savoury to the palate as could be desired. Other novelties were extracts made from lobsters, crabs, mussels, &c. In the preparation of tinned lobsters, there is a great deal of waste, the flesh from the tail and claws only being preserved. An excellent extract can, however, be made from what was formerly regarded as offal, which has the same fine taste and flavour as the flesh of the lobster. The crab may be treated in the same way.

In order to show, further, how cheapness and utility may go hand in hand, it is intended to establish Penny Kitchens, where a wholesome meal of potatoes and fish may be enjoyed for that coin.

The idea of the promoters of this new departure seems to be that every part of the fish can be utilised. The whale's flesh will be made to yield oil, extract of food, glue, meat-fibrine for dogs, and guano. The bones will yield oil, gelatine, and bone-meal; the entrails, glue and guano. From the blood will be drawn albumen; and the sinews and skin will be tanned into leather. From cod and ling will be produced the usual dried fish, or an extract, and glue and guano.

INDIAN TEA.

A continental newspaper remarks, that the increasing favour Indian tea enjoys in England and her colonies is causing considerable anxiety to the producers of Chinese tea and to the European tea-firms established in China. Calcutta alone exported last year 62,773,187 pounds of tea to England, as against 58,830,478 pounds in 1883, and 51,579,704 pounds in 1882; whilst the Australian and New Zealand markets received in 1884, 1,029,463 pounds of Indian tea, as against 696,479 pounds in 1883. It is true that this latter figure exhibits a considerable falling-off as compared with the year 1882; but at present, Australia has also begun to give the preference to the teas of India, the quality of which surpasses by far the average produce of China, as does likewise that of the teas of Ceylon, for which there is also a prosperous future in store. The successes obtained by Natal in the cultivation of tea give rise to the supposition that South Africa will within a short time provide itself with home-grown tea. The total exportation of the largest Chinese tea-port, Foochow, amounted during the past season to 77,631,997 pounds, as against 81,100,875 pounds during the

same period in the preceding year. [The total exports of tea from China to the United Kingdom, 1875-83, have been over one hundred and forty millions of pounds annually.] At Hankow, Canton, Shanghai, and Macao, the proportion will probably be the same, or nearly so. The decrease in the exportation of tea from the whole of China, as compared with the preceding year, will amount to about ten millions, and this diminution is essentially to be attributed to the deterioration of the quality of Chinese tea. The sorts of tea produced in the province of Fukien, which were formerly very highly esteemed, are principally those which have deteriorated the most.

The cultivation of tea on Chinese methods was first tried by the Indian government in 1834, and the most profitable growth is a hybrid between the indigenous and Chinese varieties. Assam supplies about seventy-seven per cent. of the total yield, and the industry is almost entirely in the hands of Europeans.

These statements are amply borne out by a reference to the state of our retail trade in Indian tea. A recent number of the *Grocer* says that Indian tea is gaining favour with the retail trade, who are evidently turning their attention more to Assam than to China growths, owing to the taste which is spreading amongst consumers for teas of undoubted strength and quality. Useful China teas are to be had suitable to the requirements of the home-trade, but they are generally weaker than Indian. A sample of Natal-grown tea sold for more, in London, lately, than a similar sample from Ceylon.

FOOD-ADULTERATION.

The Annual Report of the Local Government Board for last year shows that there are now two hundred and sixty public analysts, appointed in various parts of the country under the Sale of Food Act, to guard the interests of consumers. About twenty-three thousand analyses of samples of food were made. In connection with the grocery trade, out of five hundred and fifty-one samples of flour examined, only six were found adulterated. Spirits, butter, and coffee seem to lend themselves most easily to adulteration. Of two thousand one hundred and thirty-eight samples of spirits examined, there were about five hundred cases of adulteration; in the case of eighteen hundred and thirty-two samples of butter, there were three hundred and seventy-three; and of thirteen hundred and thirty-eight samples of coffee, two hundred and seventy-two. In the case of jam, out of two hundred and eleven samples, twenty-four were adulterated; and of seven hundred and seventy samples of mustard, eighty-two contained foreign admixtures. The Report is severe on the sale of butterine as genuine butter. 'The sale of imitations of butter is apparently on the increase, and there is no doubt that they are generally purchased as butter. We have no information as to actual injury being caused to health by the consumption of butterine, which is mainly composed of beef or pork fat, though it is stated to be less easily digested than real butter. The practice, however, of selling it in substitution for and at the price of genuine butter is not only a fraud on the buyer, but is exceedingly

hurtful to the English and Irish dairy-trade.' Coffee continues to be one of the chief subjects of adulteration, the mixture sold as such frequently consisting of one-fourth part of coffee added to three-fourths of chicory. No attempt is made to adulterate sugar, apparently, for the three hundred and twelve samples analysed were all found to be genuine.

FRUIT-GROWING IN THE FENS.

A contemporary remarks that the quantity of fruit which has this year been grown in the neighbourhood of Wisbech is enormous, a considerable portion of the crop having found its way to London for the purpose of conversion into jam. Upon a farm of some hundred and forty acres, the growth of strawberries for preserving has this season been a speciality; and it is said that for two or three weeks as much as ten tons-weight was the periodical consignment to London of this one fruit alone. The gooseberry crop has also been a good one, the berries being raised upon bushes planted beneath pear or plum trees, in order to keep them green, which is their most marketable condition. Many farms of considerable extent, which only a year or two ago produced corn at a loss, now grow fruit at a profit; and the increased area under the latter description of crop may easily be estimated, when it is stated that hundreds of Londoners of the class which supplies the hop districts with pickers have been imported into Wisbech during the past two months. Taken as a whole, the crop of currants, strawberries, gooseberries, plums, and other preserving fruits has this year been an exceptionally heavy one in that district, and consumers of jam are likely to have a good time.

ANOTHER USE FOR CHLORAL HYDRATE.

In addition to the use of chloral as an opiate, mentioned in article 'Curiosities of Poisons' (*Journal*, No. 92), a medical correspondent kindly points out that it is also a very powerful preservative of animal tissues. It has the property of checking the decomposition of a great number of albuminous substances, such as milk and meat, and is consequently largely used by medical men for the preservation of anatomical structures, and for their preparation for the microscope. Ten grains to the ounce (liquid measure) of water is the ordinary strength used; and to preserve any very large anatomical specimen, two or three ounces may be used of the chloral, to be dissolved in water sufficient to cover the material. Personne recommends its use with glycerine for the preservation of anatomical specimens.

UNSWEETENED PRESERVED MILK.

In connection with the subject of 'Preserved Milk,' the manufacture of which we have already described (*Journal*, No. 96), it may be well to state, that unsweetened preserved milk may also be had. For those who do not want thirty or forty per cent. of cane-sugar in their preserved milk, good ordinary milk may be had which has simply been concentrated by careful evaporation at a very low temperature to one-fourth of its bulk. One quart of the liquid condensed milk mixed with three quarts of water will produce

four quarts of ordinary fresh milk. It is claimed for this preparation that it will keep good in any climate: it is used in some of the London hospitals, and was of service to the sick and wounded during the Soudan campaign, some of the nurses preferring it for this purpose to the sweetened milk. Mr Gail Borden of White Plains, New York, has the honour of originating the industry of 'plain condensed milk,' and 'preserved milk,' to which sugar has been added. He introduced his plain condensed milk in 1851, and ten years afterwards his preserved milk was largely used by the American army in the field. The manufacture was introduced to Switzerland in 1865, and now condensing factories are established in England, Ireland, Denmark, Norway, Bavaria, and other countries.

ONLY A SONG.

It was only a simple ballad,
Sung to a careless throng;
There were none that knew the singer,
And few that heeded the song:
Yet the singer's voice was tender
And sweet as with love untold;
Surely those hearts were hardened,
That it left so proud and cold.

She sang of the wondrous glory
That touches the woods in spring,
Of the strange soul-stirring voices
When 'the hills break forth and sing,'
Of the happy birds low warbling
The requiem of the day,
And the quiet hush of the valleys
In the dusk of the gloaming gray.

And one in a distant corner,
A woman, worn with strife,
Heard in that song a message
From the spring-time of her life:
Fair forms rose up before her,
From the mist of vanished years;
She sat in a happy blindness,
Her eyes were veiled in tears.

Then when the song was ended,
And hushed the last sweet tone,
The listener rose up softly,
And went on her way alone.
Once more to her life of labour
She passed; but her heart was strong;
And she prayed, 'God bless the singer!
And oh, thank God for the song!'

FLORENCE TYLER.

The Conductor of CHAMBERS'S JOURNAL begs to direct the attention of CONTRIBUTORS to the following notice:

- 1st. All communications should be addressed to the Editor, 339 High Street, Edinburgh.
- 2d. For its return in case of ineligibility, postage-stamps should accompany every manuscript.
- 3d. To secure their safe return if ineligible, ALL MANUSCRIPTS, whether accompanied by a letter of advice or otherwise, should have the writer's Name and Address written upon them IN FULL.
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